

Nez Perce National Forest

Multi-Species Meso-Carnivore Surveys

Winter 2013



Photo: Dan Stone

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INTRODUCTION

In February and March 2013, a multi-species meso-carnivore survey was conducted throughout the Nez Perce National Forest (NPNF), Idaho, with the exclusion of wilderness and roadless areas. The surveys consisted of snow-track surveys for Canada lynx (*Lynx canadensis*) and North American wolverine (*Gulo gulo luscus*), and passive hair snare stations for fisher (*Martes pennanti*) and American marten (*Martes americana*). The surveys were conducted by the Nez Perce National Forest in collaboration with the USFS Rocky Mountain Research Station (RMRS) in Missoula, MT.

Currently, there are inconsistencies in the status of lynx on the Nez Perce National Forest side of the Nez Perce-Clearwater National Forests (hereafter Nez Perce National Forest or NPNF). The NPNF is labeled as unoccupied in the Northern Rockies Lynx Management Direction (USDA Forest Service 2007), yet there are historical and anecdotal observations of lynx (refer to Appendix 1 on status and management of lynx). The anecdotal observations of lynx have not been verified and could easily be confused for bobcats. Previous lynx track surveys were conducted by the RMRS in 2007 with no lynx being detected (Ulizio et al. 2007). In the NPNF Natural Resource Information System database, there are 12 cases of incidental sightings of lynx by observers with limited to no lynx experience between 1974 and 2002. As previously stated none of these sightings were verified. One lynx was trapped and verified by the Idaho Department of Fish and Game (IDFG) in 1991. Currently, IDFG do not monitor lynx populations within the state except through harvest records.

Similar to lynx, there have been recent reports of wolverines within the NPNF. These reports are anecdotal and have not been substantiated. On February 4, 2013, FWS issued a proposed rule concerning the Distinct Population Segment of the wolverine that occurs in the contiguous United States. In their rulemakings, the FWS proposed to list the wolverine as a Threatened species under the Endangered Species Act (ESA). Due to the recent proposed rule, the NPNF and RMRS biologists determined that it would also be important to survey for wolverine.

The fisher is listed as a “critically imperiled” species under Idaho’s Comprehensive Wildlife Conservation Strategy (CWCS), are regarded as a sensitive species within the US Forest Service Northern Region (R1), and are a management indicator species for the NPNF. Fisher was designated as a management indicator species to represent wildlife species that are dependent on old growth forest. On the Nez Perce-Clearwater National Forest, IDFG and the Forest Service have been implementing the US Rocky Mountain Fisher Survey Protocol (Schwartz et al. 2006). Prior to 2013, fisher surveys have been conducted on the NPNF in 10 cells with one cell partially completed. IDFG is expecting to survey an additional nine cells in 2013. The marten is not a sensitive species for the US Forest Service Northern Region, but is a management indicator species for the NPNF. Marten is listed as “secure” under the CWCS for both statewide and range-wide rankings and is managed by IDFG as a furbearing species. Marten can be detected using Schwartz et al. 2006 survey protocol. Due to the need to monitor fisher and marten as management indicator species, these two species were included in the winter surveys. Winter surveys are most conducive for detecting lynx, fisher, marten, and wolverine.

METHODS

Our survey methods followed a multi-species (lynx, wolverine, fisher, and marten) survey protocol that was laid out by combining various techniques from RMRS (Squires et al. 2012 and Schwartz et al. 2006), IDFG (Joel Sauder), and Lolo National Forest (Carly Lewis). This survey method synthesized previously developed protocols for snow-track surveys for lynx and wolverine with passive hair snare surveys for fisher and marten. In order to maximize survey efficiency in sampling for multiple species, a GIS analysis was completed to evaluate if the fisher survey grids developed for the states of Idaho and Montana (Schwartz et al. 2006) could be aligned with the 2007 lynx survey routes (Ulizio et al. 2007). To develop the 2007 lynx survey routes, Ulizio et al. (2007) developed a predictive lynx habitat model that was based on lynx research conducted in Seeley Lake and the Yaak, Montana (Squires, unpublished

data) and prioritized the 5 mile by 5 mile grids based on lynx habitat and access. In preparation for the 2013 surveys, the previous GIS models and grids were used with one additional analysis completed to assist in prioritizing fisher survey grids where hair snares would be placed. Lucretia Olson (RMRS) compared a predictive fisher distribution model developed by Mike Schwartz and Lucretia (Schwartz and Olson, unpublished data) to the 2007 lynx survey grids (Appendix II). After reviewing the GIS analysis, it was determined that the 2007 lynx survey grids were spatially compatible with the fisher distribution model. The fisher grids that had no previous surveys and had high probability of fisher distribution would be given higher priority for surveys.

Lynx & Wolverine

The protocol for snow-track surveys was developed by the RMRS after a decade or more of conducting winter track surveys for rare carnivores in western Montana. The snow-track survey protocol has undergone peer review and extensive testing in order to provide an accurate means of determining the presence or absence of a rare carnivore species in a survey area (Squires et al. 2004, McKelvey et al. 2006, Ulizio et al. 2006, Squires et al. 2012). Track surveys were conducted within a series of 5 mile x 5 mile (8 km x 8 km) grids throughout the Nez Perce National Forest (Appendix III, Figure 1). The majority of the grids were surveyed twice during the 2013 field season, with approximately 890km of roads being surveyed. If grids were surveyed only once, it was related to poor habitat, access issues, and time constraints. We followed the same survey routes as the 2007 snow-track survey in order to re-survey the predicted habitat, which would improve detection probability. Surveys were done via snowmobile traveling at 15-35km/hr on forest roads within grids that excluded wilderness and roadless areas. Potential lynx and wolverine tracks would be back-tracked using snowshoes until suitable genetic samples (hair or scat) were obtained. All hair and scat samples would be analyzed by the RMRS Wildlife Genetics Laboratory in order to accurately identify species.

Fisher & Marten

While conducting snow-track surveys, passive hair snare stations were set along survey routes following a model developed to predict high probability of fisher distribution based on some habitat attributes (Appendix III, Figure 2). We followed the U.S. Rocky Mountain Fisher Survey Protocol (Schwartz et al. 2006) and deployed 42 snares within 11 survey grids. Snares were constructed following the plastic, three-sided model presented in the fisher survey protocol. Each snare was equipped with six 30-caliber gun brushes (three on each side) for hair collection. The sites were baited using chicken wings hung from the center of the snare with wire. Skunk quill was used as a scent lure that was applied to a sponge and hung from a nearby tree limb outside of each snare. Within each survey grid, four snares were set with 0.5 miles spacing between each snare. Snares were set in suitable micro-sites near downed trees or in areas of dense cover, and were deployed for a minimum of 21 days. Because of access issues, we had one partial survey in a grid that only contained two snares; all other grids surveyed contained four snares and were considered a complete grid cell (Appendix III, Figure 2). All hair samples were submitted to the RMRS Wildlife Genetics Laboratory in order to accurately identify species.

RESULTS

Lynx & Wolverine

During 19 days of conducting snow-track surveys we found no evidence of lynx or wolverine in the Nez Perce National Forest. Our first survey route covered approximately 530km of forest roads, and our replicate survey covered approximately 360km, for a total of 890km of surveys (Appendix III, Figure 1). We followed the lynx habitat model developed by Ulizio et al. (2007) and conducted surveys in areas that contained high probability lynx habit. Grids containing high probability lynx habitat that were not surveyed were done so because of snow conditions or access issues.

During our survey we received a report of possible lynx tracks at the Fish Creek Recreation Area near Grangeville, Idaho. The survey crew followed up on the report and found the tracks to be in extremely poor condition due to a recent snowfall, and was unable to verify that they were lynx. The tracks were back-tracked, but the crew quickly lost the tracks and was unable to locate a genetic sample.

Throughout the survey, the survey crew had to contend with frequent snowfalls and tracking conditions were not always ideal. However, we completed several surveys in high probably lynx habitat during good to excellent tracking conditions. Coyote, fox, marten, fisher, bobcat, and wolf tracks were present throughout our survey and one set of mountain lion tracks were identified in grid 40.

Fisher & Marten

Out of the 42 snares deployed, 27 hair samples were collected at 20 of these hair snare stations. One sample did not contain hair and contained vegetation. The remaining 26 samples were analyzed with a test using mitochondrial DNA to identify species. Twenty-one samples contained quality DNA for species identification (80.8%) with five having poor quality DNA. Seven samples were from fisher, one from marten, five from red fox (*Vulpes vulpes*), one from long tailed weasel (*Mustela frenata*), two from red squirrel (*Tamiasciurus hudsonicus*) and five from snowshoe hare (*Lepus americanus*).

DISCUSSION

The snow-track survey results corroborate the results of the 2007 RMRS lynx survey, and provide further evidence that a lynx population does not occupy roaded areas of the Nez Perce National Forest. Snow-track surveys for lynx have been shown to be highly effective, with two survey replicates being able to establish the absence of Canada lynx with 95% certainty (Squires et al. 2012). Our results, coupled with the infrequency of lynx reports within the NPNF, suggest that such reports may be from

transient or dispersing individuals. We agree with the 2007 RMRS report that it is puzzling that lynx do not inhabit the NPNF despite extensive spruce-fir habitat and an abundance of snowshoe hare (*Lepus americanus*).

While our survey did not find any wolverine tracks, anecdotal reports of wolverines within the NPNF were reported in 2013 in the higher elevations. There have been recent wolverine sightings on the Montana side of the Bitterroot divide and three individuals were trapped between 2002-2005 within the Clearwater and Bitterroot National Forests near the Idaho/Montana border (Squires et al. 2007). The close proximity of these areas to the Nez Perce National Forest, suggests that there may be wolverines occupying at least some sections of the Forest. The rarity of anecdotal reports and the absence of wolverine tracks from our surveys suggest that resident wolverines, if present, inhabit the NPNF at very low numbers. The snow-track surveys were conducted at lower elevations (<7,000 ft), and therefore avoided alpine, steep talus slopes, and other areas characteristic of typical wolverine denning sites. The avoidance of these types of terrain for logistical and safety reasons may have influenced our results. We were unable to survey proximate areas of recent wolverine sightings because of their location within wilderness or roadless areas.

The fisher survey protocol was followed to facilitate the detection of fisher, since fisher are a higher priority species in terms of conservation status. This may be why fishers were detected more readily than marten since more emphasis was placed on fisher. In future surveys, the survey design may need to be altered to improve detection of marten, since marten are a Management Indicator Species on the Nez Perce NF. Lastly, though wolves were not the focus of the survey methods, it should be noted that wolf tracks were detected in many areas throughout the survey routes.

FUTURE RECOMMENDATIONS

We found that frequent snowfall in the area often made for difficult tracking conditions. There were sections of the 2007 survey route that we did not survey for a number of reasons. The 2012 McGuire Complex fire created poor habitat just north of Dixie along roads 311, 222, 9554, 9534, 9505, and 1190, thus, much of this area was only surveyed once. Active logging operations southeast of Elk City made surveying impractical on roads 1172, 234, and 423 due to frequent plowing. Poor snow conditions made it difficult to survey some spur roads such as 466, 1124, 651, 2116, and 444. The 2007 survey included hiking trails (588 and 505) off of road 234 that we omitted from our survey. We found the multi-species meso-carnivore survey protocol to be an efficient way of surveying and detecting fisher, marten, lynx, and wolverine, and recommend that future winter surveys follow a similar model.

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APPENDIX I: Background Information on the Status and Management of Canada Lynx on the Nez Perce National Forest

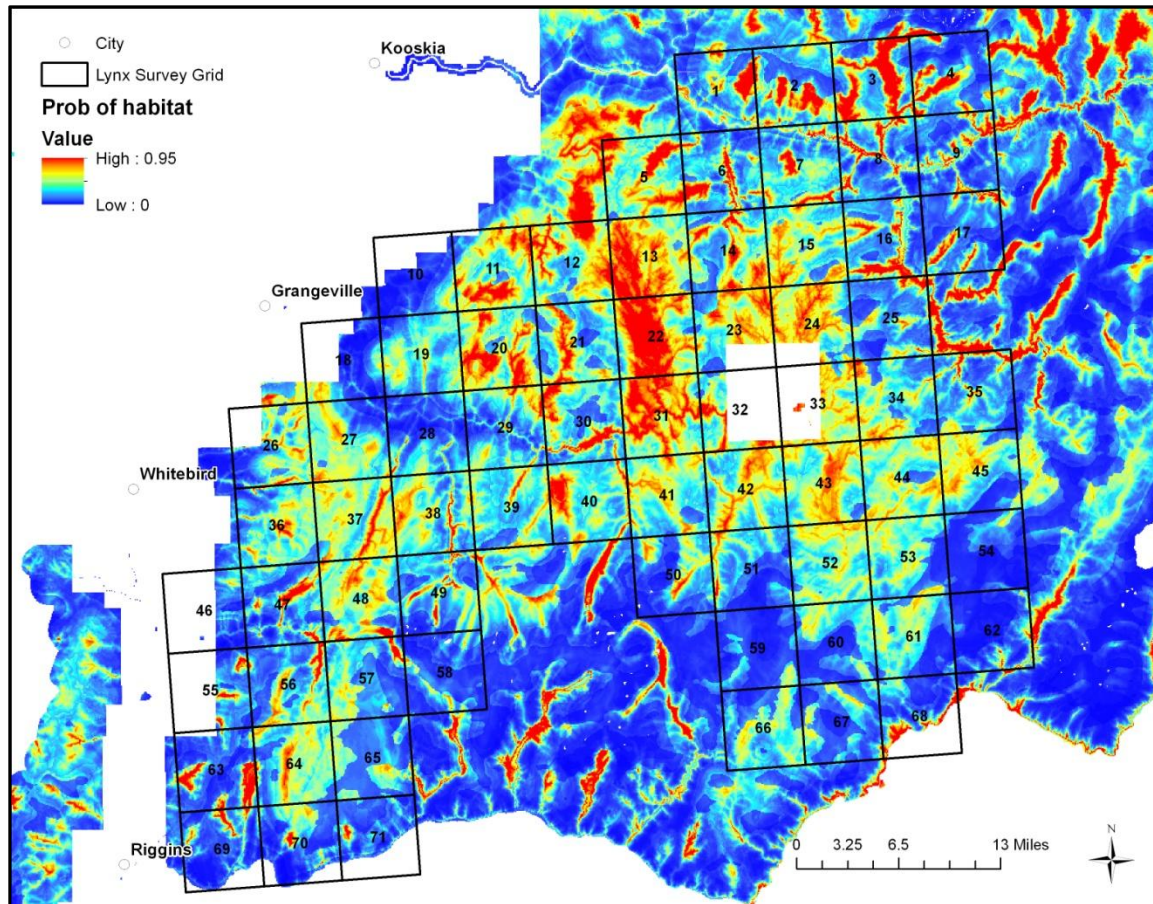
The U.S. Fish and Wildlife Service (FWS) listed the Canada lynx as a threatened species under the Endangered Species Act (ESA) in March 2000. Following the listing of the lynx, the Forest Service signed a Lynx Conservation Agreement with the FWS in 2001 to consider the Lynx Conservation Assessment and Strategy (LCAS) during project National Environmental Policy Act (NEPA) analyses. The LCAS was renewed in 2005 and added the concept of occupied mapped lynx habitat. In 2006, the LCAS was amended to define occupied habitat and to list those National Forests that were occupied (USDA Forest Service and USDI Fish and Wildlife Service 2006). In the LCAS, the Nez Perce National Forest was considered to have secondary habitat and was identified as ‘unoccupied’ by lynx.

Currently, there are inconsistencies in the status of lynx on the Nez Perce National Forest. The NPNF is labeled as unoccupied, yet there are historical and recent anecdotal observations of lynx across the forest. However, these observations are not considered to be ‘verified’ as defined by the Northern Rockies Lynx Management Direction (USDA Forest Service 2007), nor do anecdotal sightings determine that there is reproduction or a resident population. The accuracy of a couple of the lynx sightings is reputable because lynx were caught in traps and then verified by IDFG. However, these trapped lynx were prior to 1999 and so any lynx documentation prior to 1999 was not considered in designation of a Forest Service Unit being listed as occupied or unoccupied. The accuracy of other sightings may be low due to observer bias in confusing lynx and bobcats. Due to the infrequent nature of lynx observations on the NPNF, there is no evidence to show that there is a resident population or reproduction.

The Rocky Mountain Research Stations conducted surveys for lynx in 2007 on NPNF. The surveys were conducted according to established protocols (Squires et al. 2004) as recommended by the NRLMD (USDA Forest Service 2007). The surveys conducted in 2008 (hair snare) and 2009 (winter track surveys) were reduced in size and scope due to snow conditions, limited personnel, and funding. No lynx were detected during any of these survey efforts (2007, 2008, or 2009).

Due to inconsistencies on the status of lynx on the NPNF, the FWS sent a letter addressed to the Forest Supervisor, Rick Brazell (December 10, 2012) stating that “there is consensus that transient lynx may be present on the NPNF, at least occasionally”. The FWS referenced two pieces of information to come to this conclusion: 1) Ulizio *et al.* (2007) that noted, “Historical sightings that may have been confirmed may be the result of transient lynx moving through the forest, but the infrequency of such reports suggests lynx are incidental to the area”, and 2) McKelvey *et al.* (2000) reported “numerous verified historical records from Idaho County”. The letter also stated that, “the issue of lynx occupancy on the NPNF is a separate but related matter that is not the focus of this letter”. The FWS stated that this information meets the definition of ‘presence’ in the Endangered Species Act and so projects should consider impacts to transient lynx in the NEPA analyses. FWS also clarified that this does not change the NPNF status as ‘unoccupied’, but further lynx surveys are needed to determine occupancy. Thus, the surveys during the winter of 2013 were conducted to determine occupancy as part of the NPNF efforts to continue to collaborate with the FWS and meet the intent of the NRLMD by surveying for lynx every five years on units that are considered to be unoccupied.

APPENDIX II: Lynx Survey Grid and Predictive Fisher Distribution Model (Schwartz and Olson, unpublished data)



APPENDIX III: 2013 Nez Perce National Forest Multiple-species Meso-carnivore Survey Maps

Figure 1: 2013 Snow-track survey routes and fisher hair snare survey grids.

Note: Rep 1 (green) represents the first sample of surveys conducted for lynx and wolverine, which were completed across nearly all of the 2007 lynx survey routes. Rep 2 (red) represents the second sample of surveys conducted for lynx and wolverine and overlay Rep 1 in GIS. Rep 2 surveys were less extensive, but covered the majority of the routes.

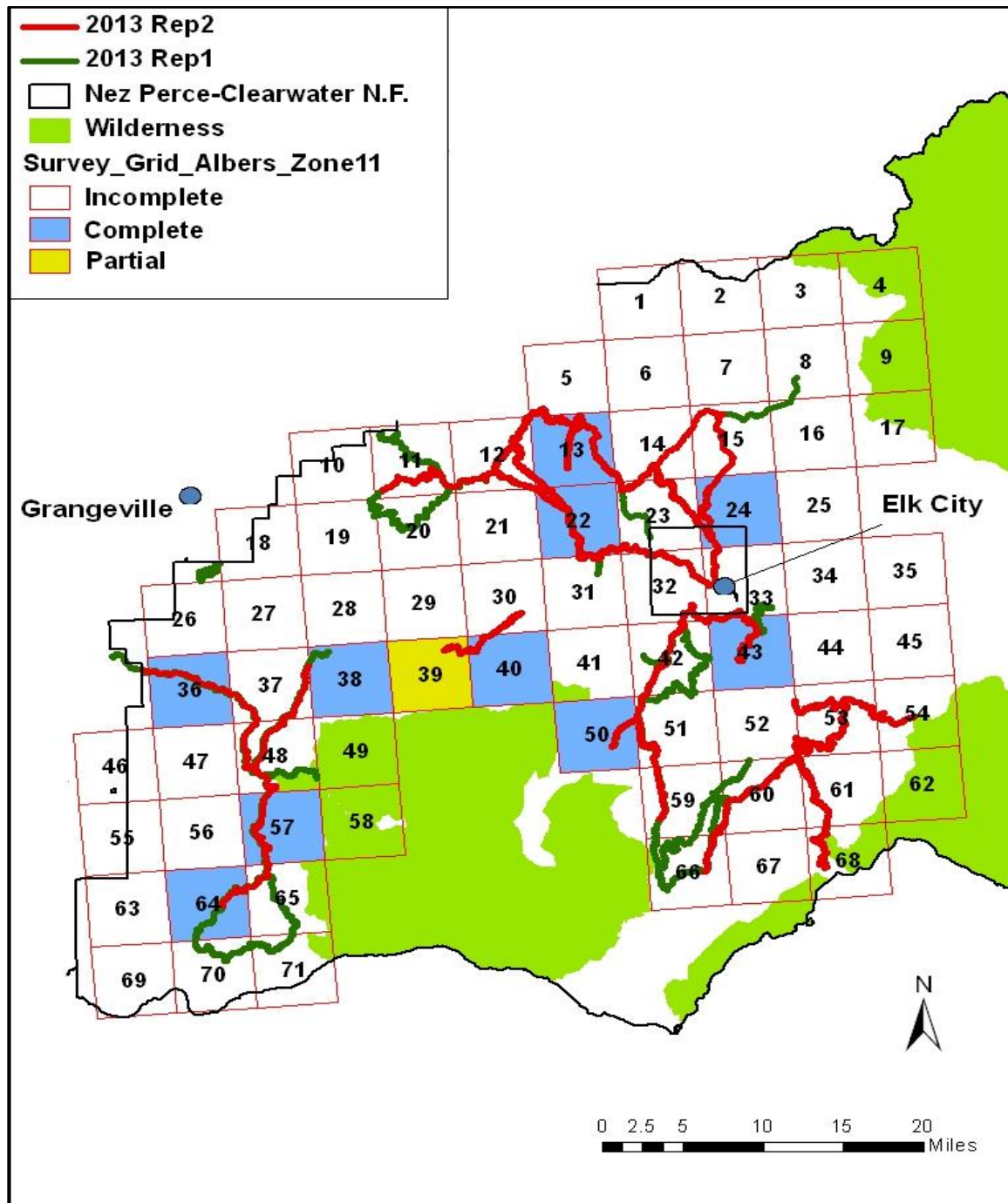


Figure 2: Fisher distribution model and hair snare survey grids for fisher and marten.

Note: Priority was given to grid cells that had a higher probability of fisher distribution based on the habitat model developed by Schwartz and Olson (unpublished data). Complete (blue) represent the grids that were completed in 2013. Partial (yellow) represent the grid that was partially completed in 2013.

